Dell™ PowerEdge™ Cluster FE655Wi Systems

Platform Guide

Notes, Notices, and Cautions

NOTE: A NOTE indicates important information that helps you make better use of your computer.

NOTICE: A NOTICE indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

⚠ CAUTION: A CAUTION indicates a potential for property damage, personal injury, or death.

Contents

This document provides information for installing and connecting peripheral hardware, storage, and Internet small computer system interface (iSCSI) network components to your Dell™ PowerEdge™ cluster FE655Wi solution. The configuration information in this document is specific to the Microsoft® Windows Server® 2003 and Microsoft Windows Server 2003, x64 operating systems.

✍ **NOTE:** Reference to Windows Server 2003 in this guide implies reference to Microsoft Windows Server 2003, Enterprise Edition and Microsoft Windows Server 2003 R2, Enterprise Edition, unless explicitly stated. Reference to Microsoft Windows Server 2003, x64 implies reference to Microsoft Windows Server 2003, Enterprise x64 Edition and Microsoft Windows Server 2003 R2, Enterprise x64 Edition.

This document covers the following topics:

- PowerEdge cluster FE655Wi solution overview.
- Configuration information for installing peripheral and embedded hardware components into PowerEdge cluster FE655Wi configurations. These components include the Ethernet daughter cards (for iSCSI traffic), the internal Gigabit Ethernet switch or pass-through modules, and the embedded server module network interface cards (NICs).
- Configuration rules and guidelines for iSCSI direct-attached and switch-attached configurations.
- Dell Cluster Configuration Support Matrix.

✍ **NOTE:** Configurations not listed in this document may not be certified or supported by Dell or Microsoft.

Overview

The PowerEdge cluster FE655Wi solution is attached to a self-contained iSCSI storage area network formed by server modules from one or more PowerEdge 1855/1955 server enclosure(s). The server modules are interconnected to one or more storage systems in an iSCSI direct-attached configuration or an iSCSI switch-attached configuration using one of the following methods:

- Self-contained iSCSI network with internal Ethernet switch modules or Ethernet pass-through modules
- External iSCSI network using Ethernet pass-through modules
- External iSCSI network using Ethernet switch modules

The PowerEdge 1855/1955 server enclosure provides up to ten server modules and two Gigabit Ethernet switch modules or pass-through modules for iSCSI communication interface. Each server module has two embedded NICs and one Gigabit Ethernet daughter card with two ports for iSCSI data paths.

Supported Cluster Configurations

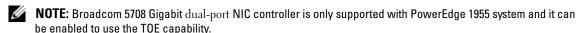This section provides information about the supported cluster configurations for your PowerEdge cluster solution. Table 1-1 provides a list of the supported cluster configurations for the PowerEdge cluster FE655Wi solution running Windows Server 2003 or Windows Server 2003, x64 operating system.

✍ **NOTE:** Each cluster node in a PowerEdge cluster configuration must be identical and must be running the same operating system.

Table 1-1. PowerEdge Cluster FE655Wi Supported Cluster Configurations

PowerEdge Systems	Ethernet Daughter Card (for iSCSI)	Storage Systems	Ethernet Modules	Cluster Interconnect (for the Private Network)
1855	Intel® PRO/1000 MB dual-port server	Dell|EMC AX150i Dell|EMC AX150SCi Dell|EMC CX3-10c	Dell PowerConnect™ 5316M Ethernet embedded switch module	Embedded NIC
1955	Broadcom 5708 Gigabit dual-port NIC controller (TCP/IP offload engine [TOE] enabled)	Dell|EMC CX3-20c Dell|EMC CX3-40c	Embedded Gigabit Ethernet pass-through module	

NOTE: Broadcom 5708 Gigabit dual-port NIC controller is only supported with PowerEdge 1955 system and it can be enabled to use the TOE capability.

NOTE: Dell|EMC CX3-10c, CX3-20c, and CX3-40c storage systems represent a combo feature of iSCSI and Fibre Channel technologies. The PowerEdge cluster FE655Wi solution uses only the iSCSI feature of the storage arrays. For more information on configuring high-availability clusters that use Fibre Channel connections on these storage systems, see the *Dell PowerEdge Cluster FE655W Systems Platform Guide*.

NOTE: The PowerEdge cluster FE655Wi solution does not support AX150SCi storage system in a switch-attached configuration.

iSCSI Initiator Support

The PowerEdge cluster FE655Wi configurations support Microsoft iSCSI Software Initiator with Gigabit Ethernet daughter cards in the PowerEdge server enclosure.

Ethernet Switch Support for iSCSI Network

The PowerEdge cluster FE655Wi solution supports Ethernet switches for iSCSI network.

- External Gigabit Ethernet switches are supported
- Dual (redundant) iSCSI networks configuration is required

System Configurations Support

The PowerEdge cluster FE655Wi solution supports the following direct-attached and switch-attached system configurations:

- Ethernet embedded switches connected to one or two storage systems
- Ethernet pass-through modules connected to a storage system
- Ethernet embedded switches connected to external Ethernet switches
- Ethernet pass-through modules connected to external Ethernet switches

Rules and Guidelines

When you are connecting two or more PowerEdge 1855/1955 server enclosures in a cluster consider the parameters in this section,

All cluster nodes must contain identical versions of the following:

- Operating systems and service packs
- Hardware, drivers, firmware or BIOS for the embedded NICs, Ethernet daughter cards, and any other peripheral hardware components
- Systems management software, such as Dell OpenManage™ systems management software and EMC® Navisphere® storage management software

Maximum Distance Between Cluster Nodes

The maximum distance allowed between two PowerEdge 1855/1955 server enclosures with embedded switches, or from a PowerEdge 1855/1955 server enclosure directly connected to a storage system or to an external switch, or from a switch to a storage system is 300 meters (984 feet) using multimode fiber at 2 Gbps. The maximum distance is 100 meters (328 feet) when using multimode fiber at 4 Gbps.

The total distance between a PowerEdge 1855/1955 server enclosure and a storage system, or between two PowerEdge 1855/1955 server enclosures with Fibre Channel pass-through modules, may be increased through the use of single-mode or multi-mode switch Inter-Switch Links (ISLs). The maximum cable length for Fast Ethernet and copper Gigabit Ethernet is 100 meters (328 feet), and for optical Gigabit Ethernet is 550 meters (1804 feet). This distance may be extended using switches and virtual local area network (VLAN) technology.

The maximum latency for a round-trip network packet between nodes is 500 milliseconds.

Obtaining More Information

For hardware and software installation and configuration information of high availability clusters, see the *Dell PowerEdge Cluster FE655Wi Systems Installation and Troubleshooting Guide*.

Attaching Your Cluster to a Shared Storage System Through Direct-Attached Configuration

This section provides the rules and guidelines for attaching your cluster nodes to the shared storage system using a direct connection (without the switches for iSCSI access).

A direct-attached configuration supports up to two cluster nodes with AX150i and CX3-10c storage systems and up to four nodes with CX3-20c and CX3-40c storage systems.

Rules and Guidelines

The rules and guidelines described in Table 1-2 apply to direct-attached clusters.

Table 1-2.   Direct-Attached Clusters Rules and Guidelines

Rule/Guideline	Description
Operating system	Each direct-attached cluster must run Windows Server 2003 or Windows Server 2003, x64 operating system.
Windows Server 2003 service pack	Windows Server 2003 is supported with all CX-series and AX-series storage systems. See "Dell Cluster Configuration Support Matrix" on page 10 for the supported versions.
Windows Server 2003, x64 service pack	Windows Server 2003, x64 is supported with CX-series storage systems only. See "Dell Cluster Configuration Support Matrix" on page 10 for the supported versions.
Primary storage	Only one storage system (AX150i, AX150SCi, CX3-10c, CX3-20c, or CX3-40c) can be directly attached to the cluster.
	NOTE: The PowerEdge cluster FE655Wi solution does not support Windows Server 2003, x64 with the Dell|EMC AX-series storage systems.
	Each Windows Server 2003 or Windows Server 2003 x64 cluster can support up to 22 unique drive letters for shared logical drives and additional physical drives through mount points.
iSCSI Initiator	Microsoft iSCSI Software Initiator
iSCSI Initiator version	See "Dell Cluster Configuration Support Matrix" on page 10 for the supported versions.
NICs for iSCSI traffic	Ethernet daughter cards: Intel PRO/1000 MB dual-port server adapter for PowerEdge 1855 systems only.
TOE NICs for iSCSI traffic	Ethernet daughter card: Broadcom 5708 Gigabit dual-port NIC controller for PowerEdge 1955 systems only.
NIC driver version	See "Dell Cluster Configuration Support Matrix" on page 10 for the supported versions.
SNP	Microsoft Scalable Networking Pack (SNP) required to enable TOE capability on the PowerEdge 1955 systems.
Ethernet modules	Two Gigabit Ethernet pass-through modules.
Dell|EMC AX150SCi and AX150i core software (EMC FLARE®)	See "Dell Cluster Configuration Support Matrix" on page 10 for the supported versions.
Dell|EMC CX3-10c, CX3-20c and, CX3-40c core software	See "Dell Cluster Configuration Support Matrix" on page 10 for the supported versions.

Attaching Your Cluster Shared Storage System through iSCSI Switch-Attached Configuration

This section provides the rules and guidelines for attaching your PowerEdge cluster nodes to the shared storage systems through an iSCSI switch-attached configuration using redundant Ethernet switch fabrics.

The switch-attached configuration supports two to eight cluster nodes connected to the storage system through an iSCSI network. In a PowerEdge cluster FE655Wi solution, a system can support up to four storage systems using an Ethernet network switch.

✎ **NOTE:** The PowerEdge cluster FE655Wi solution does not support AX150SCi storage system in a switch-attached configuration.

Rules and Guidelines

The rules and guidelines described in Table 1-3 apply to iSCSI switch-attached clusters.

Table 1-3. iSCSI Switch-Attached Clusters Rules and Guidelines

Rule/Guideline	Description
Operating system	Each switch-attached cluster must run Windows Server 2003 or Windows Server 2003, x64 operating system.
Windows Server 2003 service pack	Windows Server 2003 is supported with all CX-series and AX-series storage systems. See "Dell Cluster Configuration Support Matrix" on page 10 for the supported versions.
Windows Server 2003, x64 service pack	Windows Server 2003, x64 is supported on CX-series storage systems only. See "Dell Cluster Configuration Support Matrix" on page 10 for the supported versions.
Primary storage	Up to two supported Dell|EMC storage systems can be connected in a configuration using embedded Ethernet switches.
	Up to four supported Dell|EMC storage systems can be connected in a configuration using external Ethernet switches.
	NOTE: PowerEdge cluster FE655Wi solution does not support Windows Server 2003, x64 with Dell|EMC AX-series storage systems.
	Each Windows Server 2003 or Windows Server 2003, x64 cluster can support up to 22 unique drive letters for shared logical drives and additional physical drives through mount points.
iSCSI Initiator	Microsoft iSCSI Software Initiator
iSCSI Initiator version	See "Dell Cluster Configuration Support Matrix" on page 10 for the supported versions.
iSNS	Microsoft Internet Storage Name Service (iSNS) Server.
iSNS version	See "Dell Cluster Configuration Support Matrix" on page 10 for the supported versions.
NICs for iSCSI traffic	Ethernet daughter card: Intel PRO/1000 MB dual-port server adapter for PowerEdge 1855 systems only.

Table 1-3.   iSCSI Switch-Attached Clusters Rules and Guidelines *(continued)*

Rule/Guideline	Description
TOE NIC for iSCSI traffic	Ethernet daughter card: Broadcom 5708 Gigabit dual-port NIC controller for PowerEdge 1955 systems only.
NIC driver version	See "Dell Cluster Configuration Support Matrix" on page 10 for the supported versions.
SNP	Microsoft SNP required to enable TOE capability on PowerEdge 1955 systems.
Switch configuration for iSCSI traffic	Dual switch fabrics are required.
Switches for external iSCSI network	Gigabit Ethernet switches are required.
Ethernet modules for iSCSI traffic	• Two Gigabit Ethernet pass-through modules. • Two PowerConnect 5316M Ethernet switch modules.
AX150i core software (FLARE)	See "Dell Cluster Configuration Support Matrix" on page 10 for the supported versions.
CX3-10c, CX3-20c, and CX3-40c core software	See "Dell Cluster Configuration Support Matrix" on page 10 for the supported versions.

Obtaining More Information

For more information about iSCSI-based clusters, see *Dell PowerEdge Cluster FE655Wi Systems Installation and Troubleshooting Guide* located on the Dell Support website at **support.dell.com**.

Dell Cluster Configuration Support Matrix

The Dell Cluster Configuration Support Matrix provides the latest supported drivers, firmware, and the operating system versions for your PowerEdge cluster FE655Wi solution. To obtain the supported drivers and the firmware version for the operating system that is running on your PowerEdge cluster FE655Wi nodes:

1 Open a Web browser.

2 Navigate to the Dell High Availability Clustering website at **www.dell.com/ha**.

3 Click the **Products & Services** tab.

4 In the Product Offerings window, click **FE655Wi**.

   The *Dell Cluster Configuration Support Matrix* appears.

5 Locate the appropriate drivers and firmware that are supported on your hardware and software components and the operating system version.